SportsMedUpdate

Professor Martin P Schwellnus, *University of Cape Town, South Africa*

META ANALYSIS: ACUPUNCTURE FOR LOW BACK PAIN

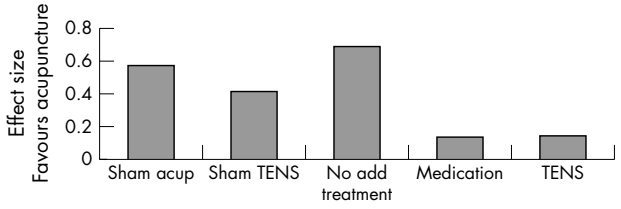
Manheimer E, White A, Berman B, *et al. Ann Intern Med* 2005;**142**:651–63

Background:
Health professionals frequently use acupuncture in the treatment for low back pain but research to document its efficacy requires analysis.

Research question/s:
Does acupuncture decrease pain in patients suffering from low back pain?

Methodology:
Experimental procedure: 33 randomised, controlled trials that met inclusion criteria (comparing needle acupuncture with sham acupuncture, other sham treatments, no additional treatment, or another active treatment for patients with low back pain) were identified. Trials were sub-grouped according to acute or chronic pain, style of acupuncture, and type of control group used.
Measures of outcome: Pain, functional status, overall improvement, return to work, and analgesic consumption.

Main finding/s:



- Chronic low back pain: pain relief in the acupuncture groups was significantly more effective than sham treatment (standardised mean difference, 0.54 (95% CI 0.35 to 0.73); 7 trials) and no additional treatment (standardised mean difference, 0.69 (CI 0.40 to 0.98); 8 trials).
- Acute low back pain: there are insufficient data and findings are therefore inconclusive.

Conclusion/s:
In a meta analysis of 33 randomised clinical trials, acupuncture has been shown to effectively relieve chronic low back pain, but there is no evidence that acupuncture is more effective than other active therapies (medication and TENS).

Evidence based rating: 9/10 **Clinical interest rating:** 8/10
Type of study: Meta analysis
Methodological considerations: Well conducted study, no longer-term follow up studies available
Keywords: low back pain, acupuncture, treatment, acute pain, chronic pain

DIAGNOSTIC ACCURACY OF A NEW CLINICAL TEST (THE THESSALY TEST) FOR EARLY DETECTION OF MENISCAL TEARS

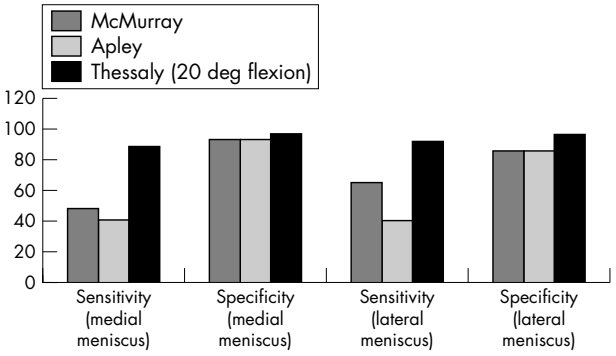
Karachalios T, Hantes M, Zibis AH, *et al. J Bone & Joint Surg* 2005;**87**:955–62

Background:
Standard clinical tests to diagnose meniscal tears in the knee are not very sensitive or specific. A new dynamic clinical examination test (Thessaly test) has not been evaluated for its sensitivity or specificity and do not present acceptable diagnostic sensitivity and specificity values. Diagnostic accuracy is improved by arthroscopic evaluation or MRI studies.

Research question/s:
What is the diagnostic accuracy of a new dynamic clinical examination test (Thessaly test) for the detection of meniscal tears?

Methodology:
Subjects: 213 patients with symptomatic knee injuries.
Experimental procedure: All of the subjects underwent a clinical examination (medial and lateral joint-line tenderness test, the McMurray test, the Apley compression and distraction test, the Thessaly test at 5° of knee flexion, and the Thessaly test at 20° of knee flexion), MRI studies (also normal side), and arthroscopic surgery.
Measures of outcome: For all clinical tests the sensitivity, specificity, false-positive, false-negative, and diagnostic accuracy rates were calculated (gold standard was arthroscopic and MRI data for the test subjects and the MRI data for the control population).

Main finding/s:



The Thessaly test (performed at 20° of knee flexion) had the highest diagnostic accuracy in the detection of tears of the medial and lateral meniscal tears, and also had the lowest rate of false-positives and false-negatives.

Conclusion/s:
A novel diagnostic test (dynamic loading of the knee in 20° flexion) (Thessaly test at 20° of knee flexion) has the highest diagnostic accuracy in the clinical diagnosis of medial and lateral meniscal tears, and can be used effectively as a first-line clinical screening test.

Evidence based rating: 8/10 **Clinical interest rating:** 9/10
Type of study: Diagnostic test (sensitivity, specificity)
Methodological considerations: Well conducted study
Keywords: Thessaly test, knee, meniscal injury, clinical test, examination

ADOLESCENT GROWTH SPURTS IN FEMALE GYMNASTS

Thomis M, Claessens AL, Lefevre J, *et al. J Pediatr* 2005;**146**:239–44

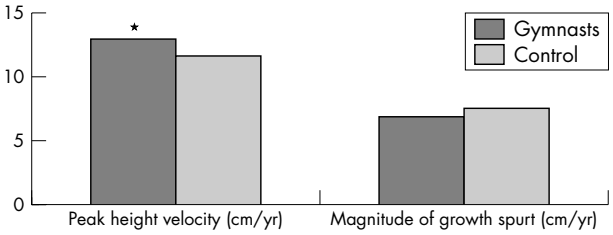
Background:
It has been suggested that gymnastics training in pre-adolescent female gymnasts may reduce the growth potential of the legs, leading to disproportionately short legs and short stature.

Research question/s:
Do female gymnasts have adolescent growth spurts in height, sitting height, and leg length, and is this response similar to female adolescent non-athletes, other female gymnasts, and short girls?

Methodology:
Subjects: 15 pre-adolescent (entry age 6–11.6 years) female gymnasts (training ~ 15 hrs/wk)

Experimental procedure: All gymnasts underwent annual height and sitting height measurements. Leg length was estimated as height minus sitting height. A model (Preece-Baines Model I) was fitted to individual growth records to estimate ages at peak velocity and peak velocities for the three dimensions. Age at menarche and skeletal age were also assessed.
Measures of outcome: Growth parameters (ages at peak velocity, peak velocities) compared with national reference group (control).

Main finding/s:



- Growth spurts in height, estimated leg length, and sitting height occurred approximately 1 year later and are slightly less intense in the gymnasts compared with a non-athletic adolescent control group.
- The age at menarche and the skeletal age were consistent with later somatic maturation.
- This pattern of adolescent growth and maturation is similar to that of other gymnasts, short normal late-maturing girls, and late-maturing girls with short parents.

Conclusion/s:
In pre-adolescent female gymnasts, the growth spurt occurs about 1 year later when compared with non-athletic control pre-adolescents, but has a similar pattern to that of short late-maturing girls, or late maturing girls with short parents.

Evidence based rating: 7/10 **Clinical interest rating:** 7/10
Type of study: Prospective cohort study
Methodological considerations: Small sample size, training and constitutional factors could not be differentiated
Keywords: growth, adolescent, spurt, gymnast, menarche, training

META-ANALYSIS: EXERCISE THERAPY FOR NONSPECIFIC LOW BACK PAIN

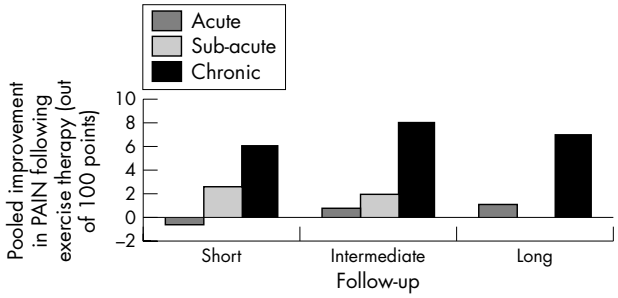
Hayden JA, van Tulder MQ, Malmivaara AV, *et al. Ann Intern Med* 2005;**142**:765–75

Background:
Exercise therapy is widely used as an intervention in low back pain and several new clinical trials have been published in this field.

Research question/s:
How effective is exercise therapy in adult nonspecific acute, sub-acute, and chronic low back pain compared with no treatment and other conservative treatments?

Methodology:
Experimental procedure: 61 randomised, controlled trials (including 6390 participants) evaluating exercise therapy for adult nonspecific low back pain and measuring pain, function, return to work or absenteeism, and global improvement outcomes met the inclusion criteria. The following trials were included: acute (11 trials), sub-acute (6 trials), and chronic (43 trials) low back pain. Two reviewers independently selected studies and extracted data on study characteristics, quality, and outcomes at short-, intermediate-, and long-term follow-up
Measures of outcome: Pooled mean improvement (out of 100 points) in pain and function at short, intermediate, and long follow-ups.

Main finding/s:



- Function: there was no significant improvement in function following exercise therapy in the acute setting, sub-acute setting. In the chronic setting, function showed small improvements with exercise therapy.
- Type of patients recruited: people seeking care for back pain had mean improvement in pain of 13.3 points (CI 5.5 to 21.1 points) and 6.9 points (CI 2.2 to 11.7 points) for function, compared with participants who had been recruited from a general population (for example, with advertisements).

Conclusion/s:
In a meta analysis, exercise therapy is effective at decreasing pain and improving function in adults with chronic low back pain, but the evidence is less convincing for adults with more sub-acute or acute low back pain.

Evidence based rating: 8.5/10 **Clinical interest rating:** 9/10
Type of study: Meta-analysis
Methodological considerations: Limitations related to published data (low quality studies with heterogeneous outcome, measures inconsistent, poor reporting), possibility of publication bias
Keywords: low back pain, acute, sub-acute, chronic, exercise